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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,847	08/25/2006	Kyuhei Kitao	3273-0227PUS1	3804

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BIRCH STEWART KOLASCH & BIRCH  
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FALLS CHURCH, VA 22040-0747

EXAMINER
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MCCULLEY, MEGAN CASSANDRA

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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02/24/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/590,847	<b>Applicant(s)</b> KITAO ET AL.	
	<b>Examiner</b> Megan McCulley	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 1-6 and 16-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 1- 6, and 16- 20 are objected to because of the following informalities:  
Claim 1 contains a typographical error: parenthesis are around "hereinafter, GPC," which make it uncertain if the words within the parenthesis is part of the claim or an aside to the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11- 12, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

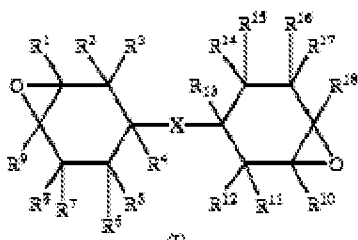
Claim 11 recites the limitation "aliphatic percarboxylic acid" in line 2, claim 12 recites the limitation "aliphatic percarboxylic acid" in line 2, and claim 15 recites the limitation "aliphatic percarboxylic acid" in line 2. There is insufficient antecedent basis for this limitation in the claim. For the purposes of further consideration, in claims 11 and 12 it is taken to mean the peracetic acid and in claim 15 it is taken to mean the solvent.

**Claim Rejections - 35 USC § 103**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

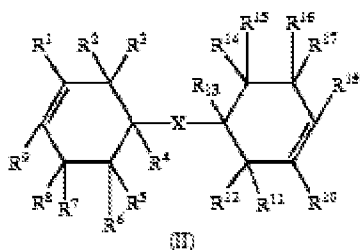
Claims 1-6 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takai (US 2003/0059618) in view of Kuwana et al. (U.S. Pat. 5,446,176).

Regarding claims 1- 5: Takai '618 teaches a compound of the formula:



wherein X represents a divalent group selected from oxygen atom, a sulfur atom, -SO-, -SO<sub>2</sub>-, -CH<sub>2</sub>-, -C(CH<sub>3</sub>)<sub>2</sub>-, -CBr<sub>2</sub>-, -C(CBr<sub>3</sub>)<sub>2</sub>-, and C(CF<sub>3</sub>)<sub>2</sub>-; R<sup>1</sup> to R<sup>18</sup> each may be the same or different from each other and are a hydrogen atom, a halogen atom, a hydrocarbon group that may contain an oxygen atom or halogen atom, or an alkoxy group that may have substituent groups (para. 23 and 24).

Takai '618 teaches a process of producing a compounds in which an olefin of the



structure:

(para. 23) is epoxidized with peracetic acid (para.

51) having substantially no water (para. 26), followed by removing the solvent ethyl

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acetate (para. 55) by distillation (para. 58). Takai '618 teaches epoxidizing the instant formula (II) with a percarboxylic acid having substantially no water (paras. 23-26).

The purity of the compound is 93.4% (Example I-1). As evidenced by the instant specification, the concentration of impurities having a shorter retention time than the compounds is 11.9%, which is within the claimed range and the concentration of reactive intermediates, of which the instant formula (III) is one, is 2.0% also within the claimed range (instant comparative example 1).

Not disclosed is the purity is 95% or more, the concentration of higher molecular weight components having an elution time shorter than the epoxy is 5.5% or less, or the color hue is 60 or less. However, Kuwana et al. teaches a similar composition with a purity of 94-97%, and therefore all impurities being between 3-6%, and a color hue of 40-50 (example 9). Takai and Kuwana et al. are analogous art since they are both concerned with the same field of endeavor, namely the process of making pure cycloaliphatic epoxies. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the purity and color hue of Kuwana et al. with the composition of Takai and would have been motivated to do so for such desirable properties as being able to commercially sell the product (see Kuwana et al. col. 5 lines 30-40) and having a non-yellowing, clear product.

Regarding claim 6: Takai '618 teaches epoxidation followed by removal of solvent by distillation (paras. 23-27 and 58)

Regarding claim 16: Takai '618 teaches a curing agent (para. 73).

Regarding claim 17: Takai '618 teaches curing the composition (para. 61)

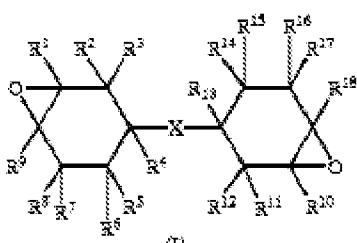
Regarding claim 18: Takai '618 teaches the cured product is transparent (para. 61)

Regarding claim 19: Takai '618 teaches an adhesive (abstract).

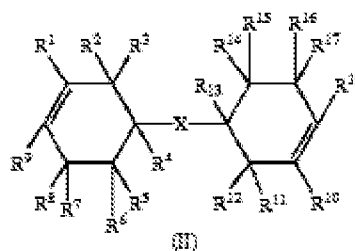
Regarding claim 20: Takai '618 teaches a coated film (para. 3).

Claims 7-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takai (US 2003/0059618) in view of Kumabe et al. (U.S. Pat. 6,201,070) and in further view of Kuwana et al. (U.S. Pat. 5,446,176).

Regarding claims 7- 10, 15: Takai '618 teaches a process of producing a



compound of wherein X represents a divalent group  
 selected from oxygen atom, a sulfur atom, -SO-, -SO<sub>2</sub>-, -CH<sub>2</sub>-, -C(CH<sub>3</sub>)<sub>2</sub>-, -CBr<sub>2</sub>-, -  
 C(CBr<sub>3</sub>)<sub>2</sub>-, and C(CF<sub>3</sub>)<sub>2</sub>-; R<sup>1</sup> to R<sup>18</sup> each may be the same or different from each other  
 and are a hydrogen atom, a halogen atom, a hydrocarbon group that may contain an  
 oxygen atom or halogen atom, or an alkoxy group that may have substituent groups



(para. 23 and 24), in which an olefin of the structure: (para.

23) is epoxidized with peracetic acid (para. 51) having substantially no water (para. 26),

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followed by removing the solvent ethyl acetate (para. 55) by distillation (para. 58). The purity of the compound is 93.4% (Example I-1). As evidenced by the instant specification, the concentration of impurities having a shorter retention time than the compounds is 11.9%, which is within the claimed range and the concentration of reactive intermediates, of which the instant formula (III) is one, is 2.0% also within the claimed range (instant comparative example 1).

Not disclosed is then purifying by distillation with a wiped film evaporator at 180-350 °C and 50-0.01 Torr. However, Kumabe et al. teaches a similar cycloaliphatic epoxy processed in a wiped film evaporator at 180 °C and 0.1-0.15 mmHg. (col. 13 lines 40-55). Takai and Kumabe et al. are analogous art since they are both concerned with the same field of endeavor, namely cycloaliphatic epoxy coatings. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the distillation step of Kumabe et al. with the process of Takai and would have been motivated to do so for such desirable properties as a more pure product.

Also not disclosed is the concentration of higher molecular weight components having an elution time shorter than the epoxy is 5.5% or less, or the color hue is 60 or less. However, Kuwana et al. teaches a similar composition with a purity of 94-97%, and therefore all impurities being between 3-6%, and a color hue of 40-50 (example 9). Takai and Kuwana et al. are analogous art since they are both concerned with the same field of endeavor, namely the process of making pure cycloaliphatic epoxies. At the time of the invention a person having ordinary skill in the art would have found it obvious to combine the purity and color hue of Kuwana et al. with the composition of Takai and

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would have been motivated to do so for such desirable properties as being able to commercially sell the product (see Kuwana et al. col. 5 lines 30-40) and having a non-yellowing, clear product.

Regarding claim 11: Takai '618 teaches the aliphatic percarboxylic acid is obtained by the oxidation of the corresponding aldehyde (para. 25).

Regarding claim 12: Takai '618 teaches the water content of the aliphatic percarboxylic acid is 0.8% by weight or less (para. 26).

### ***Double Patenting***

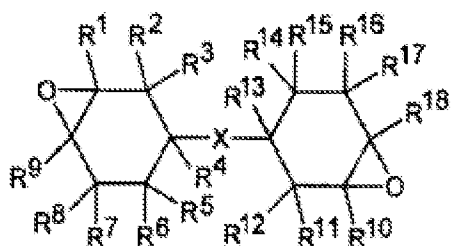
The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).



A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

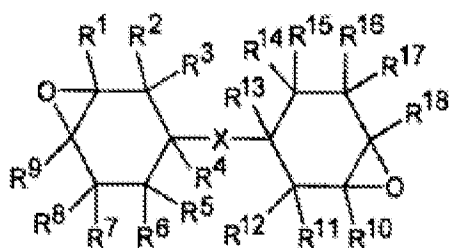
Claim 7 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 20 of copending Application No. 11/792,782. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 7 of the instant application claims



wherein X is a divalent group selected from the group consisting of an oxygen atom, a sulfur atom, -SO-, -SO<sub>2</sub>-, -CH<sub>2</sub>-, -C(CH<sub>3</sub>)<sub>2</sub>-, -CBr<sub>2</sub>-, -(CBr<sub>3</sub>)<sub>2</sub>, and -C(CF<sub>3</sub>)<sub>2</sub>-; R<sup>1</sup> to R<sup>18</sup> each may be identical or different from each other and are a hydrogen atom, a halogen atom, a hydrocarbon group that may contain an oxygen atom or halogen atom, or an alkoxy group that may have a substituent, as does claim 20 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 10/883,162. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of the instant application claims



wherein X is a divalent group selected from the group consisting of an oxygen atom, a sulfur atom, -SO-, -SO<sub>2</sub>-, -CH<sub>2</sub>-, -C(CH<sub>3</sub>)<sub>2</sub>-, -CBr<sub>2</sub>-, -(CBr<sub>3</sub>)<sub>2</sub>, and -C(CF<sub>3</sub>)<sub>2</sub>-; R<sup>1</sup> to R<sup>18</sup> each may be identical or different from each other and are a hydrogen atom, a halogen atom, a hydrocarbon group that may contain an oxygen atom or halogen atom, or an alkoxy group that may have a substituent, as does claim 5 of the copending application. While the amount of impurities claimed in claims 1-3 of the instant application are not directly taught in claim 5 of the copending application, disclosed is 100% of the compound. Therefore there would be 0% of the impurities, which reads on the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Response to Arguments***

Applicant's arguments filed December 8, 2008 have been fully considered but they are not persuasive, because:

A) Applicant's arguments that the instant specification shows that example I-1 of Takai has too many impurities is not persuasive. The prior art specifically states the composition is 93.4% pure, which means there are 6.6% impurities. It is unknown why the results of this one experiment differ with the results of the one experiment of the comparative example 1 of the instant, especially since yields were the same. More data points are needed as evidence to show that the art is wrong since one test could have incorrect measurements. However, since only one data point is given in the instant to refute Takai, the art is considered to teach 93.4% purity without further evidence.

B) Applicant's argument that the instant shows unexpected results in Tg, yellowing and pencil hardness is not persuasive. Table 1 shows better results, but only compares 3 of the instant epoxy resins to 1 or 2 of the art. The scope of comparison is not commensurate with the claims.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Megan McCulley whose telephone number is (571)270-3292. The examiner can normally be reached on Monday - Friday 7:30-5:00 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

/M. M./  
Examiner, Art Unit 1796